

## CLAIMS

What is claimed is:

1. A hydraulic concrete mixer comprising:

5 a drum having a mixing blade attached to an interior thereof;

a frame supporting the drum;

an engine mounted on the frame; and

a drive train extending through at least a portion of the drum, the drive train comprising:

10 a hydraulic motor;

a first rigid plate between the hydraulic motor and the drum;

a second rigid plate inside the drum and coupled to the first rigid plate such that a portion of the drum is held between and in fixed relationship to the first rigid plate and the second rigid plate;

15 a first shaft at least partially inside the drum and adjacent to the second rigid plate;

a second shaft adjacent to the first shaft; and

a mounting plate coupled to the second shaft,

wherein:

20 the first shaft comprises:

a first end; and

a second end substantially opposite the first end; and

the first shaft defines a passageway extending between the first end and the second end.

2. The hydraulic concrete mixer of claim 1 wherein:

5 the frame comprises a mounting bar; and

the first shaft is attached to the mounting bar such that the first shaft does not rotate.

3. The hydraulic concrete mixer of claim 1 wherein:

the first rigid plate and the second rigid plate are bolted to each other such that the

10 first rigid plate and the second rigid plate maintain a fixed relationship to each other.

4. The hydraulic concrete mixer of claim 3 wherein:

the first rigid plate and the second rigid plate are formed from steel.

15 5. The hydraulic concrete mixer of claim 4 wherein:

the first rigid plate and the second rigid plate have a thickness between approximately one and two centimeters.

6. The hydraulic concrete mixer of claim 1 further comprising:

20 a bearing on the first shaft;

a sleeve over the bearing and over at least a portion of the first shaft;

a second mounting plate coupled to the mounting plate; and

a coupler coupling the second shaft to the hydraulic motor.

7. The hydraulic concrete mixer of claim 6 further comprising:

a second bearing inside the sleeve.

5 8. The hydraulic concrete mixer of claim 1 further comprising:

a second mixing blade attached to the interior of the drum; and

a third mixing blade attached to the interior of the drum,

wherein:

the mixing blade, the second mixing blade, and the third mixing blade are spaced

10 apart such that they are substantially equidistant from each other.

9. The hydraulic concrete mixer of claim 8 wherein:

the mixing blade, the second mixing blade, and the third mixing blade comprise:

a first bar;

15 a second bar adjacent to the first bar; and

a mounting brace attaching the first bar and the second bar to the drum.

10. The hydraulic concrete mixer of claim 1 wherein:

the frame comprises:

20 a mounting bar; and

a fluid reservoir capable of containing hydraulic fluid,

wherein:

the first shaft is attached to the mounting bar such that the first shaft does not rotate.

11. The hydraulic concrete mixer of claim 10 further comprising:

- 5           a hydraulic valve;
- a power hose connecting the fluid reservoir to the hydraulic valve;
- a hydraulic hose connecting the hydraulic valve to the hydraulic motor; and
- a return hose connecting the hydraulic valve to the fluid reservoir.

10           12. The hydraulic concrete mixer of claim 11 further comprising:

- a filter between the return hose and the fluid reservoir.

13. The hydraulic concrete mixer of claim 10 wherein:

- the fluid reservoir further contains a baffle.

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14. The hydraulic concrete mixer of claim 13 wherein:

- the baffle is angled between an upper edge of the fluid reservoir and a lower edge of the fluid reservoir opposite the upper edge.

20           15. The hydraulic concrete mixer of claim 1 wherein:

- the drum comprises a plastic material.

16. The hydraulic concrete mixer of claim 1 wherein:

the engine is a gasoline-powered engine.

17. The hydraulic concrete mixer of claim 1 wherein:

the frame is attached to at least one wheel capable of bearing the weight of the  
5 hydraulic concrete mixer.

18. A drive train for a hydraulic concrete mixer, the drive train extending through a plastic drum of the hydraulic concrete mixer and comprising:

a hydraulic motor outside and adjacent to the plastic drum;

a first rigid plate between the hydraulic motor and the plastic drum;

a second rigid plate inside the drum and coupled to the first rigid plate such that a portion of the drum is held between and in fixed relationship to the first rigid plate and the second rigid plate;

a first shaft at least partially inside the plastic drum and adjacent to the second rigid plate;

a second shaft at least partially inside the first shaft;

a mounting plate coupled to the second shaft;

a bearing on the first shaft;

a sleeve covering the bearing and covering at least a portion of the first shaft;

a second mounting plate coupled to the mounting plate; and

a coupler coupling the second shaft to the hydraulic motor,

wherein:

the first shaft comprises:

a first end; and

a second end substantially opposite the first end; and

the first shaft defines a passageway extending between the first end and the second end.

19. The drive train of claim 18 further comprising:

a second bearing inside the sleeve.

20. The drive train of claim 19 attached to a wheel assembly capable of bearing the weight of the hydraulic concrete mixer.

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21. A method of manufacturing a hydraulic concrete mixer, the method comprising:

providing a frame for the hydraulic concrete mixer;

attaching a first shaft to the frame, the first shaft having a passageway extending therethrough;

5 providing a first bearing on the first shaft;

providing a drum for the hydraulic concrete mixer;

providing components for a drive train of the hydraulic concrete mixer, including at least:

10 a hydraulic motor, a first rigid plate, a second rigid plate, the first shaft, a second shaft, the first bearing, a second bearing, and a mounting plate coupled to the second shaft;

attaching the first rigid plate and the second rigid plate to each other such that a portion of the drum is held between and in fixed relationship to the first rigid plate and the second rigid plate;

15 placing the drum on the first shaft;

placing the second bearing on the first shaft;

placing the second shaft in the passageway extending through the first shaft;

coupling the mounting plate to the first rigid plate; and

attaching the hydraulic motor to the frame.